IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Serial No.	:	10/763,463	Confirmation No.: 6650
Applicant	:	Paul Schmidt et al.	
Filed	:	January 23, 2004	
TC/A.U.	:	1755	
Examiner	:	Elizabeth D. Wood	
Title	:	Unitized Fibrous Concrete Reinforcement	
Docket No.	:	PGI6044P1271US	
Customer No.	:	32116	

Commissioner For Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

DECLARATION PURSUANT TO 37 C.F.R. 1.132

Sir:

The undersigned Declarant, Nick M. Carter, hereby states as follows:

1. I am employed by Polymer Group, Inc. (PGI), and have most recently been placed in the position of Director of Research and Development, responsible for development of technologies and products to service worldwide market needs in concrete fiber admixtures.

2. I have over sixteen (16) years experience in advanced technology research and development, and over six (6) years in the construction and commercial use of extruded thermoplastic products.

3. I am named as an inventor, or co-inventor, on over twenty-five (25) issued U.S. patents directed to thermoplastic constructs, as applied to a variety of end-use applications.

4. I am named as an inventor on at least two pending patent applications specifically directed to concrete fiber reinforcement having bundled characteristics.

5. I am familiar with the above-identified patent application, the outstanding Official Action, and the cited prior art patent references, including U.S. Patent No. 5,807,458, to Sanders et al., and PCT Publication No. WO 00/49211.

6. I am familiar with the presently pending claims of the above-identified application, including the specified limitation that the recited circumferential retaining element extends spirally and circumscribes no more than 80% of the total surface area of the recited unitized fibrous constructs. I am aware that the Patent Examiner has characterized this specific limitation as being "a classic example of a result-effective variable", and respectfully take exception with the positions of the Examiner, in view of my understanding of the highly desirable results achieved by virtue of this unique and non-obvious product characteristic, as discussed below.

7. It is my understanding that during development of the present invention, a prior art product such as characterized by the cited Sanders et al. patent was known to the inventors, but the shortcomings and problems of this product were recognized by the inventors, and they endeavored to address and solve these problems. Most significantly, the inventors recognized that a product formed in accordance with the Sanders et al. patent included fiber bundles which are *substantially entirely encapsulated*, by a spirally-wound, overlapping wrapping component. Recognizing that efficient distribution of the reinforcing fibers of each bundle in a cementitious admixture was highly desirable, the inventors recognized that the substantially entire encapsulation of such fibers, in accordance with the Sanders et al. patent, *diminished fiber distribution* since the fibers themselves are exposed to relatively limited shearing and disruptive forces acting upon each bundle by the associated cementitious admixture. In essence, the substantially complete encapsulation of each bundle acts to diminish efficient reinforcing fiber distribution.

8. Upon recognition of this problem, i.e., the need for effective dissemination of fibers through the concrete mixture, the inventors devised a solution by providing a circumferential retaining element for each bundle of fibrous components, wherein the circumferential retaining element circumscribes no more than 80% of the total circumferential surface area of each unitized fibrous construct. By this unique arrangement, which I believe is specifically *contrary to* the specific teachings of the Sanders et al. patent, the present inventors recognized that *the fibrous components themselves* would be subject to the shearing and disruptive forces of the associated cementitious mixture, *desirably enhancing efficient distribution of the reinforcing components.*

9. Because I believe this is specifically contrary to the teachings of the cited Sanders et al. patent, I respectfully disagree with the Examiner's characterization that this claimed feature of the present invention is merely a "result-effective variable".

10. To confirm my conclusion, comparative testing was performed under my supervision and my control, the results of which tests are appended hereto as Appendix A. Reference to "SI bundles" refers to commercial products formed in accordance with the referenced Sanders et al. patent. "QC" refers to unitized fibrous concrete reinforcement elements formed in accordance with the present invention.

11. For purposes of this comparative testing, equal weights were employed of the products being compared. The fibrous reinforcement products were each blended with a dry cementitious mixture to thereby eliminate any effect that might result from the impact of moisture upon the products; comparative testing in this fashion was believed to best identify differences resulting from applicants' claimed arrangement for the recited circumferential

retaining element, as opposed to the substantially fully encapsulated form of the products formed in accordance with the Sanders et al. patent.

12. Appendix A includes four (4) photographs of the test of the bundled fibrous components formed in accordance with the Sanders et al. patent (i.e., the SI bundles). Photo number 1 shows two (2) "pucks" of fibrous reinforcement components formed in accordance with the Sanders et al. patent. Photo No. 2 shows the mixture after five (5) minutes mixed time; *notably, both pucks are still intact.* Photo No. 3 shows the mixture after ten (10) minutes of mix time; *notably one (1) puck still remains intact.* Photo No. 4 shows the mixture after thirteen (13) minutes of mix time, at which time both pucks have completely broken apart; notably, the binding tape of the pucks was left in the mixture as a residual macro-contaminant.

13. Comparative testing of products formed in accordance with the present invention, under substantially identical test conditions as those under which the "SI bundles" were tested, show the dramatically improved fiber distribution efficiency achieved by unitized fibrous concrete reinforcement constructs formed in accordance with the present invention. Photo No. 5 shows the bundled fibrous components of the present invention five (5) minutes of mix time; *visual inspection showed approximately 30-35% bundle disruption.* Photo No. 6 shows the bundles after eight (8) minutes of mix time; visual inspection shows approximately 70% bundle disruption effected. Photo No. 7 shows the mixture after ten (10) minutes of mix time; *visual inspection showed 90-95% disruption of the bundled fibrous components. No residual macro-contaminants were evident.*

14. I believe this comparative testing of equal quantities of fibrous components, comparing those formed in accordance with the present invention with those formed in

accordance with the Sanders et al. patent, under essentially identical test conditions, clearly demonstrates the enhanced efficiency of fiber distribution achieved by practice of the present invention, in accordance with the presently pending claims. I believe that the shear forces acting upon the fibrous components of bundles formed in accordance with the present invention desirably effected a "burst effect", enhancing distribution of the fiber components, while desirably avoiding clumping of such components.

15. It is my further belief that employing unitized fibrous components in accordance with the present invention, including a plurality of fibrous components arranged and retained in a parallel fibrous orientation desirably enhances efficient distribution of such fibrous components, particularly when compared to a randomized quantity of like fibrous components. Experience has shown that such randomly oriented fibrous components *tend to entangle and ball-up*, when introduced into a cementitious mixture, greatly diminishing efficient and even distribution of such reinforcing components. In contrast, the present invention, including fibrous components retained in a parallel orientation, permits such components to be provided in a "flowable" form, when bundled, enhancing efficient initial distribution, with subsequent disruption of each bundle permitting the individual fibrous components to be efficiently distributed throughout the cementitious mixture.

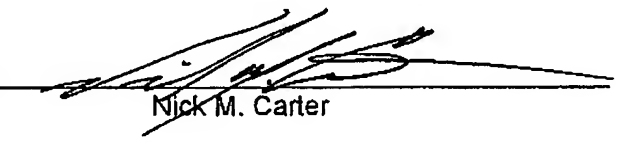
16. I am familiar with the holding of *Graham v. John Deere*, in which the Supreme Court enunciated certain indicia of non-obviousness. I believe that such indicia point to the non-obviousness, and patentable merit, of the present invention. I understand that fibrous reinforcing products formed in accordance with the cited Sanders et al. patent were generally considered to reflect the state-of-the-art, yet, as the above-discussed comparative testing

clearly demonstrates, there are significant shortcomings associated with the use of such products. Therefore, I believe that there was a long-felt, yet unsolved need, specifically addressed by the present invention. The present invention has enjoyed dramatic commercial success, with a 500% increase in sales of such material over the previous year.

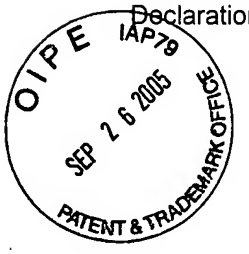
17. In connection with the rejection of the presently pending claims under 35 U.S.C. §102(b) being anticipated by PCT Publication No. WO 00/49211, I am of the opinion that this prior art document does not teach or suggest the provision of a circumferential retaining element which *extends spirally* as specifically set forth in the presently pending claims. It is my opinion that there is no teaching or suggestion in this PCT publication of providing a circumferential retaining element in accordance with the present invention, as set forth in the pending claims.

18. I hereby declare that all statements made herein on my own knowledge are true, and all statements made on information and belief are believed to be true, with the understanding that willful false statements and the like are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001, and may jeopardize the validity of the application or any patent issuing thereon.

Respectfully submitted,

By 
Nick M. Carter

September 26, 2005



Certificate of Mailing by Express Mail

I hereby certify that this Declaration Pursuant to 37 C.F.R. 1.132 is being deposited with the United States Postal Service "Express Mail Post Office To Addressee" service under 37 CFR 1.10 addressed to Commissioner of Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450, Express Mail Label No. EV 576547339 US on **September 26, 2005**.

Colleen Davison

Colleen Davison